

OBSERVATIONS
ON THE
CURE OF THE CURVED SPINE,
AND THE
Means of lessening the Effects of Fire
ON THE
HUMAN BODY.

OBSERVATIONS

ON THE

CURE OF THE CURVED SPINE



Means of Rectifying the

ON THE

HUMAN BODY.

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OBSERVATIONS
ON THE
CURE OF THE CURVED SPINE,
IN WHICH
THE EFFECT OF MECHANICAL ASSISTANCE
IS CONSIDERED.

By JAMES EARLE, Esq; F. R. S. *JK*

Surgeon Extraordinary to the KING and to
his MAJESTY's Household;

And Senior Surgeon to ST. BARTHOLOMEW's Hospital.

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CERTIFICATE OF AUTHORITY

THE SECRETARY OF THE

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TO JOHN LATHAM, M. D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS,
PHYSICIAN TO ST. BARTHOLOMEW'S AND
THE MAGDALEN HOSPITALS,

AND

PHYSICIAN EXTRAORDINARY TO HIS ROYAL HIGHNESS
THE PRINCE OF WALES;

DEAR SIR,

THE Object of the following Treatise being to assist in maintaining the upright figure of the human frame, could only with propriety be inscribed to one who has an eye for symmetry and perfection, and a heart attuned to the distresses of others.

*I beg the favor of your acceptance of it,
and am,*

DEAR SIR,

Your obedient

humble Servant,

*Hanover Square,
Nov. 16, 1799.*

JAMES EARLE.



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to bring forward any new

tions of mine in a general view of it, but

that it is to be taken notice of a particular

value of great importance in a general view

OBSERVATIONS

ON THE

Cure of the Curved Spine.

THE effects produced by a curvature or distortion of the Spine are justly numbered among the most deplorable and distressing maladies to which mankind are subject: that such must be the consequences resulting from this disease will evidently appear, if we consider the important duties to which the Spine is destined, and which must be interrupted by the diseases to which it is liable.

I am aware that this subject has been judiciously and amply treated by Le Vacher,

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and other Authors, and I should not think it necessary to bring forward any observations of mine in a general view of it, but that it is introductory to, and leads me to take notice of, a particular species of curvature of great importance to mankind, and which possibly may receive some improvement from a reconsideration of the usual mode of treating it. I shall therefore begin with briefly relating the usual consequences which are produced by morbid affections of the Spine.

The anatomical structure, use, and offices of the Spine are well known; it may therefore be sufficient in this place to observe, that, consisting of all the vertebræ, it forms a canal lined by membranes, which are a continuation of the coverings of the brain, within these the spinal marrow is contained, and is thus securely defended against external injury; and that as a boney pillar, it supports
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the ribs, and internally sustains many of the organs essential to life.

It may easily be conceived that the natural form of this column cannot be altered without the medulla which it contains being compressed and injured : consequently, the nerves given off below the compression can have but very imperfect influence on the parts to which they are distributed, which therefore become relaxed and feeble. If the Spine be curved so as to lessen the cavity of the breast,* the lungs cannot find room for expansion sufficient to admit the necessary quantity of air at each inspiration ; the mass of blood, deprived of the salutary effects of free respiration, becomes thin and poor, and, so far from furnishing an increase to the growth of the parts, is scarcely sufficient for their sustenance and nourishment ; the Heart also,

* Vid. le Vacher.

being straitened for want of room, cannot exert all its expulsive force, in consequence of which the circulation grows weak, the secretions are imperfectly carried on, and all the animal functions languish; hence general debility, emaciation, and various chronic diseases are deduced. Inflammations of the pleura, adhesions of it to the lungs, and dropsies of the breast are its frequent consequences.

This unnatural alteration in the form of the breast, however, does not always produce such bad effects. When the change is very gradually made, the organs in their growth sometimes accommodate themselves to their peculiar situation; sometimes the form which the curve takes leaves as much room for the action of the organs as they naturally possess, insomuch that persons afflicted with this complaint not only live without much inconvenience;

nience, but even enjoy a good share of health, and the head being above the compression is not affected, the intellect is often clear, the mind active and vigorous, and, whether it arises from their being prevented from following more active pursuits, or from having more time to cultivate the mind, certain it is that we often see deformed persons remarkably acute, sensible, and well-informed. But however considerable the number of those may be who live without much inconvenience from this complaint, it can be put in no comparison with that of those who linger out a miserable existence, and are prematurely destroyed.

What has been said principally regards young persons or those little advanced in age; but there are causes which may alter the natural direction of the Spine in any period of life. Persons whose occupations oblige them frequently to keep the body in a bent position, such

such as those who are accustomed to carry heavy burthens on the head and shoulders, and those who are employed in agriculture, have by degrees their Spines bent forward. Old age, which weakens the power of the ligaments and muscles, often produces the same effect, when the bones give way and bend under the weight of the head and superior extremities ; but in that case the ill consequences which have been mentioned do not follow, because the curvature has been gradually made and the cavity of the breast is not diminished.

The distortion of the Spine in youth arises from various causes, among which may be enumerated bad nursing, want of exercise, bad air, improper diet, and suffering children to get a habit of putting themselves into, and remaining long in the same posture ; weakness, either innate or accidental, of the ligaments, or muscles of the Spine may also
produce

produce it, and curvatures may be brought on by the unequal action of the muscles; from their being too weak or too strong on one side, or the other; but the first principle of all is to be found in a weakness of the bones, from a ricketty or vicious state of the constitution.

In early life this disposition to grow awry may be often counteracted by proper management and attention, in using every means to oppose the disease at its commencement and to strengthen the system. If any curvature has taken place our endeavour should be to erect the Spine, to raise it to its proper figure, and to maintain it in such its natural situation until it has acquired sufficient strength to resist the weight above; for whatever may be the cause of the mischief, the pressure of the head and other parts will, while any curve exists, tend to increase the deformity, particularly in young children. A slender
stick,

stick, whilst upright, will support a considerable weight, which when bent, will sink under it. It is the same with the Spine; when erect it is able to bear the weight of every part of the body, above, but when curved, its strength is diminished in proportion as it deviates from the perpendicular.

The distortions which I have described frequently take a lateral direction, and sometimes from within outwards, so as to bring the spinal processes of several vertebræ nearly into contact; but however large and crooked these mal-formations may be, they rarely, if ever, produce paralytic affection, or prevent the perfect use of the limbs.

There is another disease of the Spine consisting in a distempered state of the ligaments and bones, which, if suffered to proceed and increase, causes a paralysis, or, more properly, an abolition of the powers of using, and sometimes of moving the lower limbs.

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To this distemper both sexes and all ages are liable; but it has seldom been seen to commence in persons above the age of forty, it is often supposed to arise from accident, and, both in young persons and adults, ascribed to some blow or fall: That it may be produced in some habits by such means is certain, and I have traced it in many instances from such a source; but in many more it happens that no such cause is assignable. Persons under such circumstances begin to stoop or falter in their walking, before they think at all of their back or of any violence offered to it.

The curvature of the Spine which is the cause of this complaint varies in situation, extent, and degree, being either in the neck or back, or sometimes, though very seldom, in the upper part of the loins: in this case, whatever may be its extent or degree, it is at first almost always the same; that is, it

is from within outward, and seldom or never to either side. The smallest curve, in which two or three vertebræ are concerned, is attended with the same symptoms as the largest.

On this disease that excellent author and practitioner the late Mr. Pott bestowed much pains and attention; before his time it was not understood, and as, at least in modern times, no attempt to cure it has been invented, those who were afflicted with it were deserted, and left to linger out a miserable existence. It remained for the sagacity of Mr. Pott to investigate its cause, and in the valuable tract which he wrote on the subject, he has laid down a very accurate discrimination of it from every other species of Paralysis.

Improving on a hint from an ancient writer, most fortunately for mankind, Mr. Pott discovered a method of curing this dreadful malady, and has left behind him a plan

plan for the treatment of it, which alone would suffice to transmit his name with honor to future ages.* It has now stood

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* Mr. P. professes to have taken his idea from a passage in Hippocrates, in which he speaks of a paralysis of the lower limbs being cured by an abscess formed in the back or loins. If we look into many of the ancient Writers since the days of Hippocrates, we find in affections of the Spine a drain from the part recommended, and it is generally advised to be made with the actual cautery. The complaint of which we are now writing is described by them, but apparently without a knowledge of the true cause and nature of it: it is called by them *Gibbositas*. *Albucasis* particularly notices it, and recommends the use of the actual cautery. “*Sæpius quidem*
“*accidit hic morbus pueris parvis. Signa vero incipientis hu-*
“*jus morbi in pueris sunt, si acciderit illis anhelitus strictio*
“*apud ascensum & motum, Invenierisque unam vertebrarum*
“*dorsi eorum jam incipere super reliquas vertebrae accumulari;*
“*Quando igitur hoc videris, et cohibere cupis malum, tunc*
“*cauteriza illum cauterio quod sit circulus, ad hanc formam, ut*
“*capiat ustio omne latus vertebræ æqualiter. Et si vis, a-*
“*durere possis circum vertebram cum cauterio punctuali se-*
“*ries per duas aut tres, sintque puncta ad invicem propinqua,*
“*tum curato locum donec sanitur cum illis quæ memoravimus.*”

the test of many years, has been approved, and has received the sanction of so many

The great caution which he expresses against burning in cases arising from spasm is remarkable—"Caveas autem ab usu cauterii in Gibbositate ex spasmō Nervi oriunda, per Deum igitur Cautus sis."—

Albucasis de ulsione incipientis Gibbositatis, p. 85.

Avicenna, after recommending a variety of medicines external and internal in these cases, says, "Quando non valent curationes cum eis, quæ bibuntur et emplastris & similibus, administretur cauterium ut removeatur mollificatio, & induretur locus."

Avicenna, p. 966, de curâ Gibbositatis.

The same mode of cure may be met with in other authors, who appear to have received the idea from those quoted.

The Egyptians were extremely partial to the application of Moxa or linum crudum, which, when placed on the part in the form of a pyramid, was set fire to and produced an Eschar. They found it efficacious in diseases and pains in the back, loins, neck, and also in pains affecting the joints. Others have used lint or down, some flax, for the same purpose.

Vid. Prosperus Alpinus de Medicina Ægyptiorum, p. 209.

These modes of burning the part have been long since laid aside, and till Mr. P. took up the subject I do not find any other attempt to cure the complaint introduced by later authors.

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practitioners that I should think it unnecessary to say more on the subject, but that it appears to me that the plan, excellent as it is, may be improved and assisted. This is the reason, and this alone, which has induced me to take up the pen on a subject which has already been so ably discussed; though indeed I feel myself in some degree called upon to make these observations from having had peculiar opportunities, both in private practice and at St. Bartholomew's Hospital, of investigating Mr. Pott's method: I began with his earliest patients, have pursued his plan, am well acquainted with the extent of its powers, and think myself warranted in saying I know what it *will do*, and what it *will not do*.

Since Mr. Pott made his first observations on this disease, it has much engaged the attention of the profession, and from repeated examinations it has been proved to be caused by the giving way of the bodies of some of
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the vertebræ owing to a loss of substance produced by caries : in many cases the remaining parts of the bone shew that they were considerably enlarged before the carious disposition took place, which has led some to consider it as a species of *spina ventosa* of the back-bone. Such a state of the bones often produces bad symptoms and much mischief ; but the curvature cannot take place till the caries has caused a loss of substance in the bodies of the vertebræ.

The first and great object in our endeavours to relieve this disease must be to prevent the increase or continuance of the caries, and to give nature an opportunity of restoring the weakened part by furnishing fresh growth of boney matter. That this effect has been produced by Issues opened on each side of the curvature has been proved beyond controversy, by symptoms in the living, and by examination of the parts after death. Many persons,

persons, as well as myself, have, in a great variety of instances, had opportunities of observing the gradual progress of total imbecility to strength and vigour, without the intervention of any other means than Issues. I have by me a very considerable collection of these cases, which passed under my own inspection, where perfect cures have been performed by Issues, and by Issues only. These I had, some time since, thoughts of publishing, but the fact appeared to be so universally admitted that it was deemed unnecessary. Yet highly as I think of the power and efficacy of Issues in these cases, I must confess that in many which I have attended I have been conscious of the want of some power, or means, to raise and support the superior parts and to take off the superincumbent pressure. And I have long been of opinion that in *this case*, Surgery will find great advantage in the aid of Mechanism.

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The assistance derived from mechanical powers in a variety of chirurgical cases is too notorious to require to be mentioned: their effects on bent bones, clubbed feet, and other distortions of the limbs, must be manifest to any one who will candidly give his attention to the subject; yet from unaccountable prejudices, I have known some eminent practitioners in surgery oppose even in these cases, what they call the use of Irons, and who would let Nature persist in her error, in hopes that she may rectify herself in the general growth of the body, rather than take proper means to lead her into the right path; while the real state of the fact is, that the complaint is much more likely to grow with the growth of the child and strengthen with its strength, until it becomes confirmed and unalterable. Not long since I was consulted on account of a child whose feet were inverted in such a manner that he walked on
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the external ankles. This child had been shewn soon after birth to a practitioner of great eminence, who occasionally saw it till his death, at which period the child had attained the age of nearly two years, without having used any means to give the feet the right direction. At the first view of the deplorable state of the limbs, I advised the parents to apply immediately for the best assistance, and by careful and close attention to the case, to make up as much as possible for the time and opportunity which had been thrown away. A pair of shoes with Irons and proper bandages were accordingly applied by Mr. Lawrie, and in a twelvemonth after I saw the child running about, upright and treading firmly on the soles of the feet. In no great length of time afterwards the instruments were quite unnecessary. I have mentioned this case to mark the effect of prejudice, which prevented the child from

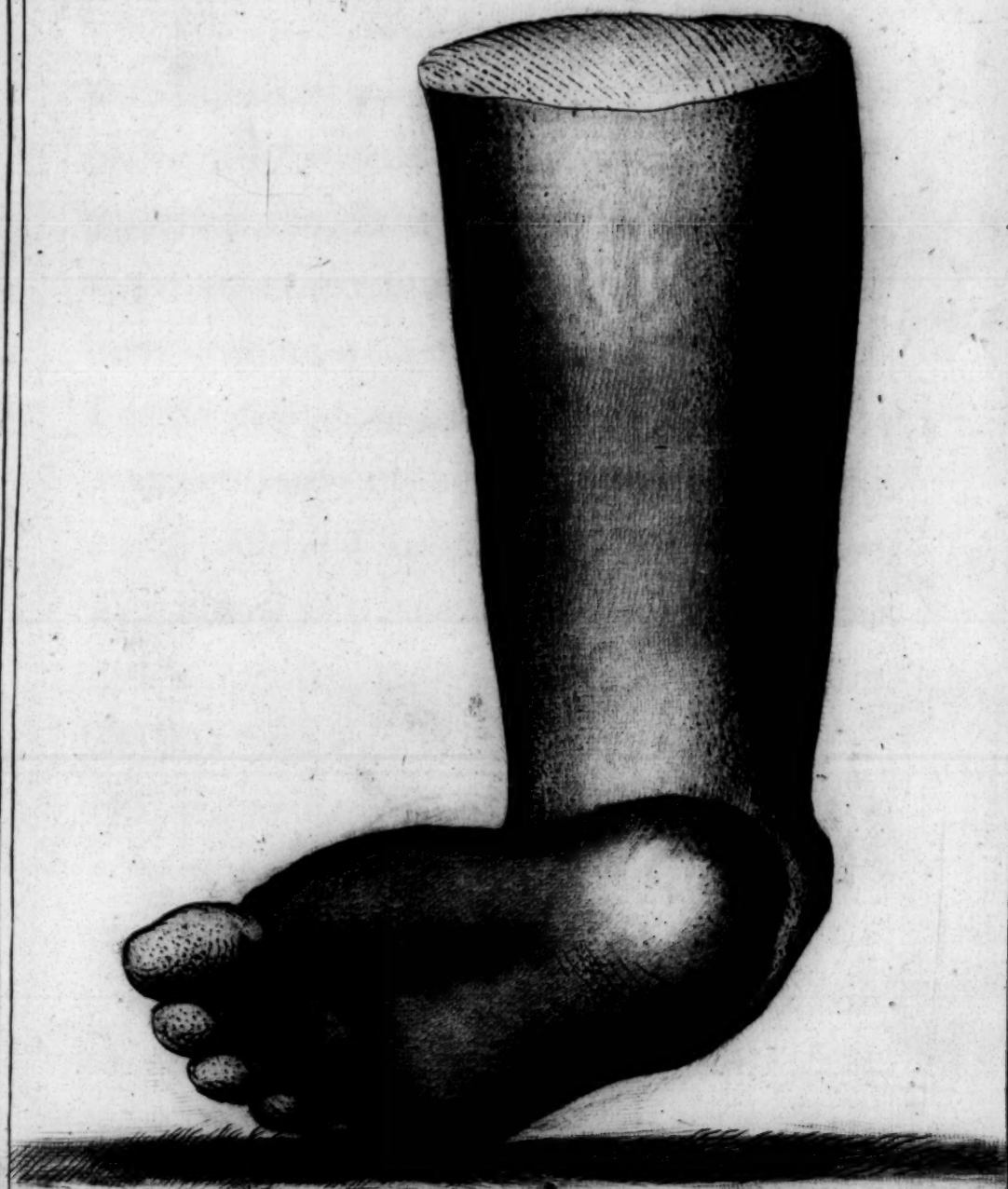
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receiving

receiving the early benefit which it might have had, as was evident in another case of a child of the Reverend Mr. ——— of Putney, who was shewn to me at about the age of ten months. This child was born with the right foot inverted or clubbed, and held in the position described in the annexed Plate, by strong muscular contraction. The use of the foot was however perfectly restored in somewhat more than a twelvemonth, by the application of an Iron assisted by a proper bandage, which gradually extended the contraction and retained the foot in a good position till the cure was effected.—

As I have touched on this subject I cannot but take notice of another case of this kind, the mode of treatment being somewhat different from the foregoing. This was a fine boy of two or three months old, who had the misfortune to be born with both the feet clubbed, the toes turning inward and the
soles

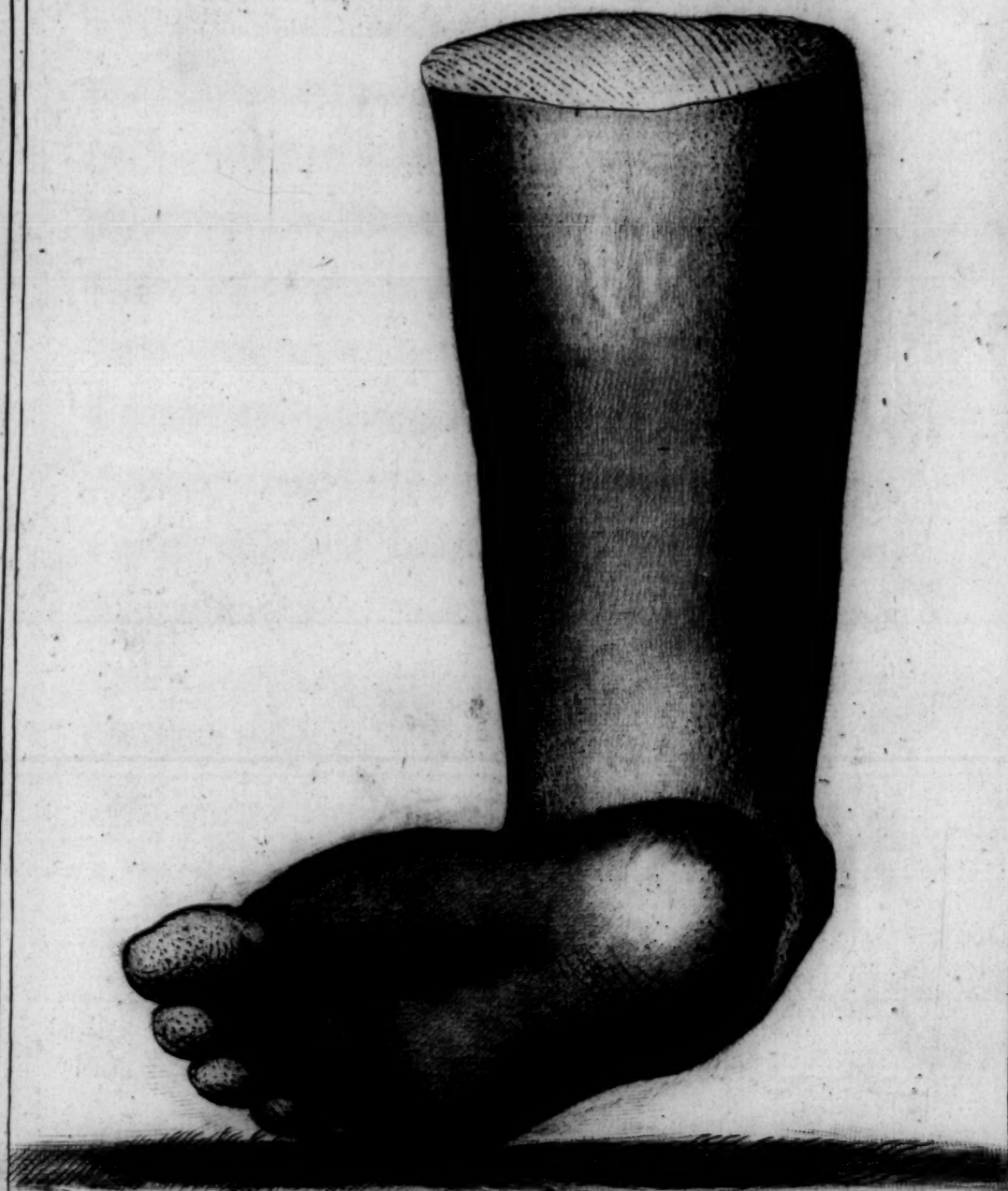
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soles of the feet upward, as in the annexed Plate, but in a greater degree, the contraction in this case being remarkably strong and obstinate. As the child was so young, the confining the feet together by a pair of clasps was not objected to : what the instrument-makers in these cases technically call *clasps* is a contrivance to fasten a pair of shoes together by a center-screw, upon which they turn as on a pivot, and as the shoes are made to recede from each other by a gradual extension of the feet, a second screw is contrived to secure them in the right position. This ingenious method was used with the best success until the child was of sufficient age to walk, when the proper Irons were applied to confirm the cure, and which, under the care of Mr. Lawrie, was perfectly accomplished in about eighteen months. This happened in the year 1791. The child, now in the eighth year of its age, remains

upright and well, and has the perfect use of his feet.

I do not mention these cases as altogether new, or remarkably singular, but merely to observe on the beneficial effects to be derived from mechanical assistance properly applied; and altho' it should be urged that much mischief may have been occasioned by the use of Irons, I conceive, when that is the case, it must arise from the abuse or misapplication of what is in proper hands a safe and powerful remedy. I might add many more similar cases which have passed under my own inspection and which have been treated with equal success but that they would swell these observations too much and lead me from the principal point to which my view is directed. How long it may be necessary to wear the instruments, or when it may be safe to lay them aside, must be uncertain, as it must depend on the nature of the complaint, the
 strength

strength of the child, and various other circumstances. It may be observed that if the inversion of the foot arises from muscular action alone, we may expect to succeed sooner than when it is attended with a relaxation of the ligaments, and a paralytic affection of the muscles ; and in general we may conclude, that the sooner the instruments are applied, and consequently the sooner the natural growth of the parts is induced to take the proper direction, the better and more readily will our object be attained.

Mr. Pott had no objection to the use of instruments in cases of distorted limbs, I have many times known them applied under his direction with great advantage ; but he certainly did not entertain a favourable idea of any assistance to be gained by mechanical powers in those distortions, or incurvations of the Spine which were the subject of his treatise ; on the contrary, in several passages of
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the work alluded to, he shewed a marked disapprobation of them. He was of opinion that the discharge produced by the Issues was all which is requisite for a cure, and so it has certainly often proved, no other means being employed in cases which have succeeded perfectly ; yet he agreed that other assistant means, such as bark, cold bathing, frictions, &c. might occasionally be added, in order to expedite the cure : but with regard to pieces of mechanism, as was observed, he always objected to them, and would not allow them to be in any degree assistant to his plan. I should certainly be cautious in giving an opinion after such respectable authority, yet I must observe, which cannot be disputed, that science is progressive, and that being mounted on the shoulders of another, we have sometimes the means of seeing further ; that the more respectable an author is, the more weight his opinions carry, and consequently there

there is more reason why those opinions should be scrutinized if they clash with subsequent observations apparently well founded. Thus, with all due deference to the judgment of a man of whom no one can entertain a higher opinion, I must observe that I think some powers of mechanic ingenuity may in many cases of distortions of the Spine be made, not only to assist in accomplishing the end which Mr. Pott intended by the caustics, but to produce effects more beneficial, and far beyond what he himself expected from their application.

Mr. Pott observes that “ these pieces of mechanism are calculated to obviate and remove what does not exist, that they are formed on a supposition of actual dislocation, which never is the case, and therefore they always have been and ever must be less.” I readily allow that in those cases in which the

Issues

Issues have been so successful there is no dislocation; but it must be acknowledged that the part occupied by the disease is extremely weak, and incapable of supporting the weight of the parts above the curvature. On this head Mr. P. himself remarks that, “if the curvature
 “be of the neck the child finds it inconvenient
 “and painful to support its own head, and is
 “always desirous of laying it on a table, pillow,
 “low, or any thing, to take off the weight.” The same thing precisely happens when the disease attacks the dorsal or lumbal vertebræ. Every one who has attended to these cases must have remarked the efforts which children make under such circumstances; I speak of children as being most frequently liable to the complaint, but adults and every one subject to a weakness in the back, from whatever cause, endeavour to take off the load which oppresses them, by supporting themselves on tables or chairs, and when they
 rise

rise to walk, they press their hands on their knees in order to relieve the Spine: All this points out the necessity of giving what assistance is in our power to the weak part.

In another place Mr. P. observes that the bones are already carious or tending to become so, the parts connected with them diseased, and not infrequently ulcerated; that
 “ there is no displacement of the vertebræ
 “ with regard to each other, and that the
 “ spine bends forward only because the rotten
 “ bone or bones intervening between the
 “ sound ones give way, being *unable* in such
 “ state to bear the weight of the parts above.”

Surely then it appears reasonable that those parts should be strengthened and supported while nature with the assistance of the Issues is doing the work of restoration by putting a stop to the caries, after which boney matter is deposited to supply the deficiency which the disease has produced. We apply

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splints

splints to a broken leg while ossification is forming, we do not allow any pressure to be made on it while that natural process is going on, and the patient takes off the weight of the body from it by means of crutches, until it is perfectly strong and capable of its own duty. I am at a loss to find any good reason or sound argument why the same means of assistance, at least so far as lies in our power, should, not be applied in cases of a weakened Spine, in order to take off superincumbent pressure, and to endeavour to restore the actual form of the Spine during the progress of the cure : if this be not attempted or cannot be brought about at this time, the consequence must be that the back will remain crooked during the cure. Nature is obliged to do her work while it is in the bent position, and though the strength of the pillar be subsequently increased, the cure itself becomes in some degree an evil, and a
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lasting one, as the growth of new bone in that situation must consolidate all the parts, and must confirm the curvature exactly, or nearly as it stood, before the cure was attempted ; for whatever power the Issues have in strengthening, it cannot be supposed that they can materially alter the curve which is already formed. The period when we are most likely to improve the form of the pillar must be during the progress of the cure, while the parts allow of some latitude of motion ; when they are once become consolidated and fixed by the growth of bony matter, no alteration scarcely can take place but what is effected by the future general growth of the whole body. In very young subjects this is certainly very considerable ; but is not this an argument why the assistance to be obtained by growth should as early as possible be determined in a proper direction ? When that is accomplished, bark, cold-bathing,

and frictions may be useful ; but till then, the aid which they may give only contributes to fix and confirm the parts in a wrong situation. From repeated observation I am so convinced, and conceive the benefit likely to result from mechanic assistance so self-evident, that it would seem unnecessary to advance any thing further in prospect of convincing others, had not the objections to it originated in an authority so generally respected ; I shall therefore continue my observations, and as a proof how necessary it is that by some means or other the pressure of the parts above must be in many cases taken off while the cure is perfecting, and to shew that Mr. Pott himself was convinced of the necessity of it, though perhaps it did not appear to him exactly in the same point of view, I must remark that in many cases of curved Spines which Mr. P. attended, he thought it necessary to confine his patients to bed, or to
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a horizontal situation during the greatest part of the cure, as they could not bear to remain in an upright position. I need not observe how irksome this must be, how it must tend to relax and weaken the patient, and consequently to retard the cure; seeing it only in this light, it must be acknowledged that any means which would render unnecessary this severe and unhealthy process must be desirable and advantageous.

That many of the machines which have been invented to remedy distorted Spines, from having been imperfectly or improperly made, badly contrived, or injudiciously applied, are capable of doing much mischief, must certainly be allowed: the neck-swing, and the screw-chair, I should conceive, can do little good, for it is obvious that a posture produced by swinging a child by the neck, or stretching it in a chair, cannot long be born: he may be amused in it at first, but
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in a short time it will become irksome, if not painful, and he will be urgent to be released, and then, what good can an extension of such duration have done? the weight of the superior parts, all the rest of the day, destroys the little effect produced. If it be often repeated, the alternative of extension and relaxation weakens the muscles and ligaments, the Spine consequently is more easily bent and increases in its curvature. In many cases, when the parts are already weakened by the disease, much mischief, even to fatality, may be the consequence of imprudently or violently stretching them. The stays, which are intended to apply forcible pressure to the prominent part of the curve, are also, in my opinion, inefficacious, and sometimes detrimental; but if a machine be contrived to elevate the head, and support the thorax, passing down the Spine, and strengthening it, as a splint does a broken limb,

resting

resting on the pelvis, as its basis, and with a contrivance to give such gradual and permanent extension as the weak parts will bear without injury, and to be continued until, by a deposition of osseous matter, the yielding vertebræ become firm and compact bones, I am clearly of opinion that much good from it may be derived.

Such is the nature of the instrument described by Le Vacher and intended by him to remedy distortions or inclinations to grow awry in the early part of life. Various modifications of this and other contrivances with a similar intention are well executed by several ingenious artists in this town.

A machine of this kind properly made and applied has certainly great power in remedying the distortions of early life, and the advantages to be derived from it are at first sight manifest : by its assistance the Spine is stretched just so much and so long as is thought right and the patient while he wears it

it may walk and amuse himself in any manner he pleases. It does not prevent writing, drawing, or playing on the Harpsichord, nor does it prohibit dancing or using many kinds of exercise. The horizontal position makes it unnecessary for the instrument to be worn in bed, but if from any peculiar circumstances it might be thought right to keep it on all night, it may be done without disturbing rest.

It must be obvious that in all cases of early distortion the sooner the application is made the better, while it may be expected to meet with pliancy in the bones and ligaments, and may be assisted by their future growth: after the age of sixteen or seventeen, of course less is to be expected than at earlier age; tho' there have been instances of persons, who have had curvatures from their infancy, being materially assisted in the decline of life by the support derived from such an apparatus.

Indeed,

Indeed the good effects arising from a *well-adapted* instrument in cases of curvature, from various causes unaccompanied with caries, is so generally known and acknowledged that it is unnecessary to say more on the subject in this place: but what I principally wish by the description of it on the present occasion, is to shew that it is safe and useful, and to endeavour to set aside the disinclination which I perceive in many practitioners, as well as in the writings of Mr. Pott, to admit of its use or assistance in cases of curvature attended with caries: and further, I shall endeavour to make it apparent that, in some of these cases, such a contrivance is not only frequently useful but often absolutely necessary. I need not observe that undoubtedly greater care and judgment are required in the application of it where some of the bones of the Spine being carious, the parts connected with them may more easily be injured by

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improperly or suddenly stretching them, than when the curve has arisen from muscular action or other causes.

But I hope not to be misunderstood ; I do not mean to say, indeed am far from thinking, that instruments of any sort are wanting in every case of curvature arising from caries. The Issues are often sufficient to complete the cure without any other assistance, as has been proved in numberless instances.

Mr. P. in his treatise has in his usual perspicuous manner given a circumstantial account of the method of applying the caustics and conducting his mode of cure ; but as some alterations have since been introduced which appear to be improvements on his plan, I think it right to notice them. Mr. P. has directed the Issues to be made of an oval shape, and has left a sketch of one, as a pattern, one inch long by three quarters of an inch wide. From repeated experience I have found

found longitudinal eschars according to the extent of the curve answer better. They should be made so that the peas should lie imbedded on each side, and near to the spinal processes. Particular attention should be given that the caustics should be applied so as to reach just above the curvature. I have many times seen a large and copious drain maintained without effect because it was made below the beginning of the curve; but, on its being opened above, the good effect derived from it soon took place. If peas or small beans are used, they should be softened by soaking them in water; they should then be strung on a thread and suffered to dry, when they are to be cut into proper lengths according to the drain, which, as was observed, must vary with the circumstances of the case: thus they are easily applied and easily removed. It has always been no small difficulty to keep these Issues open and in a good state, so as to furnish a

proper discharge. The means which have been usually employed for this purpose are painful, and the effects produced by them of short duration ; so that the Issues were perpetually closing and filling up with fungous granulations, in consequence of which the unpleasant task of using Escharotics became necessary, at least once a week, or oftener in some subjects. This in adults was often as much as they could bear ; in children peculiarly distressing to every one concerned. At some intervals this was necessary to be done with fresh application of caustic, perhaps more painful than the original one.

The powdered *Ærugo Æris* and the *Unguentum Cantharidis*, which are commonly recommended, are painful applications and their effects not lasting. The *Unguentum Sabinæ* answers our purpose better, as, with less pain, it produces a much more considerable and purulent discharge : that which takes place from the *Unguentum Cantharidis* is of a sanguinous nature.

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The following is the formula recommended by Mr. Crowther in his treatise on diseased joints.

Ceratum Sabinæ.

R. Sabinæ recentis contusæ

Ceræ fluvæ singularum libram unam

Adipis suillæ libras quatuor

Adipe & cerâ liquefactis incoque Sabinam.

This may be applied from time to time as may become necessary ; if it stimulates too much it may be lowered with Cerat. Sperm. Cet. In some thin emaciated children, lint, with this ointment occasionally spread on it, will answer the purpose of peas and lie easier. In some persons, with the previous application of a blister it is found a good substitute for caustic.

I have certainly been much in the habit of following Mr. Pott's plan in procuring the requisite drain by Issues made with caustic, and have bestowed some pains to keep them in order,

order, and in a good state; yet, after all our care and attention, it must be confessed that they are liable to many objections, and that the management of them is extremely difficult, and cannot with propriety or safety be entrusted to the care of ordinary nurses and attendants. I have lately used Setons, and, on the whole, am very much inclined to give them the preference. The object is to procure a large discharge of matter by supuration from underneath the membrane adiposa on each side of the curvature, and to maintain it until the cure be accomplished, or so long as may be thought necessary. Whether this be brought about by Issues or Setons is not material, but the easiest means will always be the best. Mr. P. disliked Setons; he observes, “a Seton is a painful and nasty thing, “besides which, it frequently wears through “the skin before the end for which it is made “can be accomplished.” In the common way

way of making and managing Setons this was certainly the case; the usual mode was in general to make the track of the Seton short, but, be the length what it might, the silk, or whatever it was thought proper to use, was passed through and cut off an inch or two above and below, and a knot was fastened at each end to prevent it from slipping out. This was ordered to be moved every day backward and forward, and the wounds at each end to be made clean; but the Seton was not changed, so that it constantly remained in the wound, immersed in, and confining a quantity of putrid matter, the acrimony of which certainly tended to inflame the skin, and made it gull its way out; thus it certainly became a "painful and a nasty thing," but under different management I conceive the effect produced will be very different. The method I would take the liberty to recommend is the following. A Seton-needle should be procured of sufficient length, suppose about
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five inches long, nearly straight, made to pierce its way like a lancet : by such an instrument the track of the Seton may be carried to as great a distance as can be required. It should be introduced at the superior point of the track proposed, and terminate at the lower. So much of a skein of coarse silk as is thought necessary may thus be introduced, and when brought out at the lower wound, should be cut off from the needle, leaving about an inch to be secured, either by a knot, or by a slip of sticking-plaister, to prevent its being drawn back again. The remainder of the silk above should be neatly coiled up, and confined by a slip or two of sticking-plaister. When the suppuration is established, and the Seton become loose, it may be drawn down. The part which is soiled by the matter may be cut off, and a fresh portion of silk introduced. When one skein is used, another may be connected to it, and drawn through in the same manner. Thus it may be

be changed as often as necessary, and the wound be kept perfectly sweet and clean. By these means the skin will not become inflamed or irritated, and the drain may be continued almost for any length of time.

I have often remarked that the first action or stimulus of the caustics frequently produces an almost immediate effect; the patients in a day or two after they are applied find a considerable alteration for the better in the general state of their health, attended with a glowing warmth, and sometimes a degree of motion in the limbs. I have desired the young gentlemen in the Hospital to remark this, and I have foretold that this agreeable symptom would soon be less apparent; for until the Issues should arrive at a more advanced stage, no permanent good effects would be observed; and my conjecture has seldom proved unfounded. I mention this that people may not be discouraged at experiencing this kind of check

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upon their hopes; let them wait with patience till the drain is fairly established, and they will rarely be disappointed in their expectations.

Parents, nurses, and persons unaccustomed to these cases, dread the quantity of the discharge, and conceive it must tend to weaken the constitution; but it certainly has not such an effect. I have often remarked children improving in health and strength and growing fat under a very considerable drain of this sort. I do not mean to say that this alone is the cause of the amendment; the return of health probably arises from the stop which is put to the ravages of the disease; and I only mean to infer that neither health nor strength appears to be diminished by the discharge, which it is necessary to keep up in order to effect a cure.

Mr. Pott has remarked that “there can be
 “no curvature from within outward without
 “an erosive destruction of the bodies of some
 “of

“ of the vertebræ ; but that there is not infre-
 “ quently caries without any curvature being
 “ produced ; that this happens more frequently
 “ in the loins than in any other part of the
 “ Spine ; that what are called lumbal or psoas
 “ abscesses are not uncommonly produced in
 “ this manner ; and that a caries of the Spine
 “ is more usually a cause than an effect of these
 “ abscesses.” That caries of the bodies of the
 vertebræ may produce bad symptoms and may
 cause great mischief before it has destroyed
 sufficient of the boney support to make the
 Spine bend, is not only probable but a fact
 well known. Not only abscesses are produced
 by it, but it is frequently accompanied with
 grinding deep-seated pains in the pelvis
 and thighs, sometimes to such a degree as to
 produce an inability of motion in the limbs,
 bordering on paralyfis, but not to such a de-
 gree as when the bones have given way and
 caused a compression on the spinal marrow.

It is reasonable to conclude that the same means which are known to cure a disease in its advanced state, would be more likely to prove efficacious in stopping its progress in the beginning; but Mr. P. has remarked that “ when these complaints are not attended with
 “ an alteration of the figure of the back-bone,
 “ neither the real seat nor the true nature of
 “ such distemper is pointed out by the general
 “ symptoms, and consequently that they are
 “ frequently unknown, at least while the patient
 “ lives.” This is an observation of material import, and should not be passed by without a comment, as it rather tends to damp our inquiry into this species of mischief, the progress of which might often be arrested if found out in time. It may be right therefore to observe, what from repeated instances I have learned, that, in cases which have led to a suspicion of the producing cause being derived from the back, if we attend to the patient’s

patient's complaints and observe the part to which he points, the seat of the mischief may often be discovered, by pressure with the fingers, or tapping with the knuckles gently on each vertebra, singly, one after another. I need not repeat that this is a fact of great consequence to be known, as when discovered, the incipient disease may often be stopped, and probably many lumbar abscesses, with all the consequences of increase of mischief, may be prevented. I will take the liberty to relate a case which will tend to illustrate this point of practice.

In April 1795, Mrs. F——, a Lady from Ireland, consulted Dr. Turton on account of pains, with which she was afflicted about the lower part of the loins and hips, which were thought to be rheumatic. As she received no relief from medicine, and there was some inability to walk, Doctor Turton, with his usual acuteness of judgment, suspected that her complaints

plaints might arise from the Spine. I was accordingly desired to examine it; I found the spinal processes of all the vertebræ perfectly regular and even, and could discover no reason to suppose that the disease had its source from that origin. On its increasing, I was desired to meet the Doctor again. She was now considerably worse, her pains in bed were tormenting and almost constant; with great difficulty, and not without the assistance of a servant, she could drag one foot after the other across the room. I again examined the Spine, and could discern not the smallest deviation from the right line; but, on pressing pretty firmly on every vertebra singly, I observed, when I came to the two lowermost of the loins, she shrunk from the touch, and said, in that part I gave her a sensation she had not felt before, amounting to pain, tho' not acute. From these observations alone, it was determined to apply caustics on each side

side of those vertebræ, the surprising and happy consequence of which was, that in a few nights her pains grew better, and soon in a great degree left her. In a fortnight she was able to walk without assistance across the room; soon after she went into the neighbourhood of Hampton Court, where her health and strength improved rapidly, and in about two months she was able to walk a couple of miles. In the autumn I saw her at Brighthelmstone, where she bathed, walked, rode on horseback, and enjoyed good health and spirits; and I may add, that I afterwards met her frequently in London, where she spent the winter, without any return of the complaint.

Many more instances might be adduced when the cause, tho' occult, has been discovered, and the mischief, which we may positively conclude would have gone on from bad to worse, has by the assistance of caustics been restrained and prevented. If any doubt should

should arise about the precise spot where they should be applied, the caustics, if it be thought proper to use that method, not being confined to small oval ones, but made longitudinal, so as to take in one or more of the vertebræ, according to circumstances, will be the means of finding out the disease and acting upon it : or if Setons are used, they may be made sufficiently long to include with certainty the seat of the disease.

Since these observations were made, I have received the favour of a letter from an accurate observer and excellent judge of the subject, which is so much in point, that, with his permission, I shall make no hesitation about inserting it.

Dear Sir,

I have long entertained an opinion that in cases of paralysis of the lower limbs arising from diseased vertebræ a more effectual discharge than such as is usually produced

duced by caustics might be obtained, and the cure thereby consequently expedited. It is not merely an issue that is wanted, but a deep-seated drain ; and the nearer to the caries such drain can be established, the better chance there must surely be for the removal of the disease. I have for a few years past been in the habit of recommending a Seton on each side of the affected Spine ; and can, from my own experience, confidently assert that a very copious discharge may be maintained for many months together with little or no difficulty. The Setons have indeed a manifest advantage over common Issues—for they embrace a larger extent, which is of material consequence when the diseased part cannot very accurately be determined, or when there is reason to suppose that several vertebræ may be affected—they become efficient in three or four days, when the sloughs from caustics do not suppurate generally in a week or ten days—they

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are

are not in the least degree offensive, as the Setons are daily drawn downwards, and the purulent ends cut off—they seldom or never need the application of escharotics, as there is no surface, except at the extreme points, from which fungous granulations can possibly shoot, and there is no trouble in keeping them in their places, as the upper and clean part is coiled up and secured by a slip of adhesive plaister. In a case about two years ago, where the effects of pressure of the Spine were but too evident, from a total loss of sensation in the lower extremities, and where, from the same cause, there were involuntary discharges of urine, and very obstinate constiveness, and, in short, every symptom which usually characterises the disease, but where the precise spot of pressure could not exactly be ascertained, I directed a Seton to be inserted on each side of the Spine, so as to include a space of about six inches. In a very
few

few days some advantage was observable, and in three weeks he had a greater command over his urine than he had experienced for many months: the Setons were maintained for more than half a year, without any other difficulty than the insertion of a clean skein of silk when the old one was nearly expended, and which was easily effected by looping that which was fresh into the end of the other; about which time the patient was so far recovered as to walk with the assistance of a stick. I might mention also a patient in the hospital, where the diseased vertebræ could not with accuracy be determined, and where the chance of exactly hitting the proper spot with caustics would have been very doubtful. This man is happily recovering his limbs by the insertion of Setons, which occupy a space within which the diseased part must necessarily be included. The circumstances, however, of this case I need not particularise, as

you may remember I one day pointed it out to you, as being, in my opinion, an instance of the superiority of Setons over common Issues.

I am,

Dear Sir,

Yours sincerely,

Bedford-row,
April 8, 1799.

J. LATHAM.

I take this opportunity of thanking Dr. Latham for his obliging communication. It certainly strongly corroborates the advantages to be derived from Setons, and shews how well calculated they are to search out the situation of the disease when it is not perfectly apparent to the sight or touch. However, whether the drain be made with the Seton or caustic, I feel the highest satisfaction in having it in my power to assert, that by such simple means may one of the most destructive disorders which attack the human frame

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be prevented, and the blessings of health restored. To him who discovered it every praise is due, and any attempt to improve on it, at least, I may presume, cannot fail of being well received.

The progress of the cure by caustics is described by Mr. Pott with his usual accuracy, which I shall beg leave partly to quote, as the latter part of it may lead me to some further observations. By means of these discharges, the eroding caries is first checked and then stopped, in consequence of which an incarnation takes place, and the cartilages between the bodies of the vertebræ having been previously destroyed, the bones become united with each other, and form a kind of anchylosis.

The time necessary for the accomplishment of this must, in the nature of things, be considerable in all cases, but very different, according to different circumstances.

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No degree of benefit or relief, nor any the smallest tendency toward a cure is to be expected until the caries be stopped, when the diseased parts will be removed by absorption, and healthy granulations form, which ultimately become bone. The larger the quantity of bones concerned, and the greater degree of waste and havock committed by the caries, the greater must be the length of time required for the correction of it, and for restoring to a sound state so large a quantity of distempered parts.

In the progress toward a cure the same gradation or succession of circumstances may be observed, as was found to attend the formation of the disease, with this difference, that those which attend the latter are much more rapid than those which accompany the former.

After the discharge has been established some time, but that is uncertain, the patient

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is found to be better in all general respects, and if of an age to distinguish, will acknowledge that he feels himself in better health, and that his appetite is improved, his sleep refreshed, and he has a more quiet and less hectic kind of pulse; but the relief which he feels above all others is from having got rid of that distressing sensation of tightness about the stomach; in a little time more, a degree of warmth and a sensation is felt in the thighs which they had been strangers to for some time; and generally much about the same period, the power of retaining and discharging the urine and fæces begins to be in some degree exerted.

The first return of motion in the limbs is rather disagreeable, being involuntary, and of the spasmodic kind, recurring principally in the night, and generally attended with a state of pain in all the muscles concerned.

At this point of amendment, if it may be

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so called, it is no uncommon thing, especially in bad cases, for the patient to remain some time without making any further progress: this in adults occasions impatience, and in parents despair, but in the middle kind of case, the power of voluntary motion generally soon follows the involuntary.

The knees and ancles by degrees lose their stiffness, and the relaxation of the latter enables the patient to set his feet flat upon the ground, the certain mark that the power of walking will soon follow: but those joints having lost their rigidity become exceedingly weak, and are not for some time capable of serving the purpose of progression.

The first voluntary motions are weak, not constantly performable, nor even every day, and liable to great variation from a number of accidental circumstances, both external and internal.

The first attempts to walk are feeble, and
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bear every mark of nervous and muscular debility ; the patient stands in need of much help, and his steps with the best support will be irregular and unsteady ; but when patients have arrived at this point, I have never seen an instance in which they did not soon attain the full power of walking.

When the patient can just walk, either with crutches or between two supporters, he generally finds much trouble and inconvenience in not being able to resist or to regulate the more powerful action of the stronger muscles of the thigh over the weaker, by which his legs are frequently brought involuntarily across each other, and he is suddenly thrown down.

Adults find assistance in *crutches*, by laying hold of chairs, tables, &c.—but the best and safest assistance for a child is what is called a *go-cart*, of such height as to reach under the arms, and so made as to inclose the whole body :

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this takes all inconvenient weight off the legs, and at the same time enables the child to move them as much as it may please.

Time and patience are very requisite, but they do in this case, as in many others, accomplish our wishes at last.

The deformity remaining after recovery is subject to great uncertainty, and considerable variety, as it depends on the degree of caries, and the number of bones affected: in general it may be said, that where one vertebra only is affected, and the patient young, the curve will in length of time totally disappear; but where *two or three are affected this cannot be expected*. The thing aimed at is the consolidation and union of the bones which had been carious, and are now become sound: without this there can be no cure, and this must in such cases render the *curvature*, and consequently *the deformity, permanent*. The Issues will restore the use of the limbs, but *not the lost figure of the Spine*.

Thus

Thus has Mr. Pott described the progress of the cure; the correctness of the representation I have had many opportunities of proving; but must confess was never satisfied with the concluding paragraph, any more than with the following observations by the same author, “ that, when three, four, or
 “ more of the vertebræ are concerned in the
 “ curve, the trunk of the body will have so
 “ little support from that part of the Spine
 “ which is distempered, that *no degree of deformity* can be wondered at, nor can it be
 “ expected that such deformity should be
 “ removed (by the Issues) whatever other
 “ benefit such patient may receive.” Again,
 “ when two or more vertebræ are affected,
 “ forming a large curve, however perfect the
 “ success may be with regard to the restoration of health and limbs, yet the curvature
 “ will and must remain, in consequence of
 “ the union of the bones with each other.”

These observations and others of the same tendency, added to the many melancholy instances which I have seen after a cure had been affected by Issues alone, had long obtruded unpleasantly on my recollection. Prolonging life merely to lengthen out a miserable existence, and enabling a wretched being to crawl a little longer on the earth, appears very unsatisfactory, and stopping short, if the idea be indulged, that by any assistance from art, more may be done. I have often thought it would be a most happy circumstance could we go a step further, and cure the deformity so well as the disease; for besides the disgusting appearance of the crookedness which remained, want of health, debility, and inactivity usually accompanied it; and another very material consequence resulted from it, namely, that the largeness of the remaining curvature rendered the Spine *mechanically* weak, which probably being
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added to a tendency to the same softness of bones as was the foundation of the original malady, was the efficient cause of the disease being liable to return. This was a very strong and additional reason why the improvement of the form of the Spine should be equally the object of our attention with the cure of the disease. Some cases of relapse and of peculiar difficulty occurring to me in practice, first led me to consider the subject in this light, and made me seek for mechanical assistance. The crutches and go-cart which Mr. Pott recommended, appeared to me very inadequate to the purpose; for a little time in the day indeed they might elevate the shoulders, but could not support the head; from this, I should conceive, it must be obvious that little good could be derived. But I am so clearly convinced that in many such bad cases as Mr. Pott has described, his excellent plan may be rendered
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more efficacious by *proper assistance*, I mean the judicious and careful application of a mechanical apparatus similar to what I have before described, and I am so confident that I have often seen advantages derived from it, that I conceive I should be wanting in the duties of my situation, did I not deliver my sentiments on the subject. I therefore embrace this opportunity to say, from many observations which I have made, that it appears to me that the majority of those desperate and unfortunate cases, which have not succeeded after the establishment of a drain, and which consequently may have tended to bring the mode of cure itself into some disrepute, owe their failure to the want of employing a proper support, and taking off superincumbent weight and pressure. In cases, then, where the curvature is large, the mischief of long standing, the local weakness great, producing, and at the same time

time increased by want of general health and strength, I earnestly recommend mechanical assistance; and, even in many cases which are not so bad as I have represented, but where the curve is smaller, of no long standing, and the strength of the patient not diminished, it is my firm opinion that a proper support would greatly assist, enable patients sooner to take exercise, and consequently to gain strength, would shorten the necessary continuance of the discharge, and expedite the cure. Upon the whole, I am most clearly of opinion, that, in this species of curvature arising from caries, as well as in cases of common distortions of the Spine from other causes, *mechanical powers*, if *judiciously* and *carefully applied* under the direction of an experienced surgeon, can do no harm, but may be productive of incalculable advantages.

As physical arguments are best supported by facts, I shall take the liberty to state the
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circumstances of the first case which led me to consider the subject in the light I have mentioned, and I shall subsequently take notice of a few more which have confirmed my opinion, in the relation of which will plainly be seen the wonderful power which the caustics had, and the points at which they failed; in short, they will evidently demonstrate what caustics can do in these cases, and what they cannot do.

C A S E I.

August 25, 1788.

I was desired to visit a young lady, about eleven years of age. She had been a remarkably active, upright girl, and in her school was allowed to excel in dancing. About the 18th of March immediately preceding the time mentioned, her friends and herself began to observe a want of action in the lower limbs. No cause could be assigned, but she
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found a disinclination to walk, and this gradually increased, until, on the 1st day of May following, the lower limbs became entirely useless. Examining the Spine, I found a protrusion of several of the superior dorsal vertebræ, forming a large curvature. She was much emaciated, had lost appetite, and complained of pain at the pit of the stomach. Unable to turn herself in bed, she was obliged to remain in any posture in which she was placed. As she sat confined in a chair, she had not power even to kick the feet forwards. If she was supported on her feet, the extremities of the toes rested on the floor, without her having power to raise them, so as to admit the sole of the foot or heel to touch the ground. The calves of the legs were become small and flabby. In short, she was as deplorable an instance of the effect produced by pressure on the spinal marrow, as I had almost ever seen. I recommended to try

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the power of the caustics, which were accordingly applied on each side of the curvature. The eschars separated in about the usual time, and a large discharge was produced. In about a fortnight, as she sat in a high chair, I observed she began to kick with both her feet, at first a very little way; in a few days this power increased, and she was able to extend them considerably further. The calves of the legs became firmer, her appetite improved, her digestion was perfectly good, and (September 16,) she was able to turn herself in bed without assistance. September 25, I went to see her; she was sitting in her chair as usual, kicking to shew how she could use her legs. I asked her, if she thought she could walk? She said, she believed she could with some assistance. I lifted her from her chair, and to my great surprise she walked across the room, only taking hold of one of my hands, and this she repeated several times with

with her feet flat on the ground. After this period she continued to acquire strength gradually. November 17, she walked very well, but *the curvature* caused her to walk in a bent posture. November 21, she was rather more upright, and walked round the room by herself, only taking hold of the chair or wainscot, whichever happened to be near: she was also able to walk up stairs or down. November 26, she walked across the room without any assistance whatever; but, as I did not choose for her to strain herself too much, I gave her my finger, with the help of which she could walk for any length of time. November 30, she walked round the room only pressing with one hand on the wainscot, and did not complain of fatigue. December 10, she continued to improve in strength, and walked without any assistance but a stick.

Thus far my notes on this case lead me. I soon after took my leave, only visiting her

occasionally. Her health and strength continued to improve, but the curvature remained nearly as at first, which, as before observed, was very large. The Issues were continued nearly a twelvemonth, when they were suffered to heal. Soon after this period this young lady again began to feel symptoms and sensations similar to what she had experienced before the caustics were applied; pain at the pit of the stomach, difficulty in moving the lower limbs, and in a short time she was growing rapidly worse. It was thought adviseable to open the Issues again, which being done, she soon perceived an amendment in all her complaints. But reflecting on the case, I attributed her relapse to the largeness of the curve which was left, and which, added to general weakness, was not capable of sustaining the weight of the parts above; I therefore desired that an ingenious mechanic might be sent for,

for, to take measure and fit her with a proper apparatus, which was accordingly done by Mr. Jones; from the time it was applied she improved in health and strength, and in a few weeks gained several inches in height; neither the Issues nor the instruments were left off, till it was judged that she had no further occasion for them; after which she continued to increase in stature, the curvature became less conspicuous, and she had no return of her former symptoms.

C A S E II.

October 1791.

I saw a child about five years old, who had lost the use of his lower limbs; he was just returned from the sea-side, where he had been all the summer. On account of a considerable curvature in his Spine, Issues had been made in his back in the preceding August. When I saw him in London, the nurse
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said, he complained so much of pain, that she thought it impossible to keep the Issues open any longer, though she was convinced the child had received some benefit from them. On looking at his back, I observed that the peas were put in singly, four or five on each side, all over the surface of the sores made by the caustic, which in one place extended over the Spine, so that some of the peas lay on the projecting part of the Spine : As this was probably the cause of the extraordinary degree of pain and uneasiness, I concluded that if the peas were confined to a line, as we usually recommend, they would lie easier ; four peas were accordingly threaded and applied on each side, letting the other parts heal ; but it was not possible to keep them so near the Spine as was advisable, owing to the original caustics having been applied too wide : the child became easy, and, though a miserable little being, certainly gained

gained strength. December 4, he was able to walk across the room, though with his body much bent. The 23d, I found his health considerably improved, and he walked better. After this time, as he was at some distance from town, I saw him seldom, but from time to time he appeared to gain strength. March 20, 1792, I called on him, and had the pleasure to find the Issues well taken care of, and of seeing the child walk without pain or difficulty, carry a box, pull out a heavy drawer and push it in again with ease, and in every respect he appeared to have gained great strength and powers. In about a twelvemonth, the Issues were suffered to heal; soon after which the child again grew weak, and walked with difficulty, in a bent position. He was again sent to the sea, and the caustics were renewed, from which he soon began to find benefit; but, as the curvature was very large, it was determined

mined to add the assistance of support by a mechanical apparatus, which was accordingly applied : the child grew rapidly better. The instrument was from that time worn for some years, during which he continued to improve without any further interruption ; and I may add, that in May 1795, he called on me healthy, upright, and grown to a moderate height.

C A S E III.

In September 1793, Miss ———, of Bristol, about six years old, was observed by the person who had the care of her, to have a lump or rising on her back, which gave no pain, nor had she any complaint or uneasiness. The lump continued to increase in size, and towards the end of the year, her friends began to observe that she walked awkwardly, and dragged her feet along the ground. Early in 1794, the difficulty of walking increased, and she

she frequently fell down on plain ground: her debility increasing to a most alarming degree, in March 1794 she was brought to London; her legs were now useless, and she was obliged to be carried like an infant. I found a protrusion of three of the lumbar vertebræ; the middle one had started so as to form rather an acute angle. As there was no doubt but that pressure on the medulla spinalis, owing to the giving way of the bodies of some of the vertebræ, probably, from caries, was the cause of the mischief; I recommended a drain to be opened on each side of the curve. Her remaining in London not being convenient; she returned to Bristol, where the Issues were made: In a short time she felt good effects from them, and soon found the use of her feet. In August 1794, she was again brought to London; I was agreeably surpris'd to see her perfectly lively, stand upright, and walk well. I was the

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more astonished at the great alteration, as the Issues had been made very small, and were nearly healed. The child being so well, I did not choose to enlarge them; but particularly charged the person who had the care of her, and who was remarkably attentive and intelligent, that if the child at all receded, or if any of the old complaints returned, the Issues should be immediately enlarged, as I suspected the drain had not been sufficient to cure the disease. She continued well till October following, when her friends remarked that she did not like to sit in a chair, but preferred to stand and lean on her elbows, and often complained that her sides were tired, that she began to sleep ill, would cry in the night, and say she felt fatigued. All these complaints increasing, in January 1795 she could not walk at all. The gentlemen of the faculty in Bristol were consulted, who thought the complaint was in
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the hips and lower part of the back, which were repeatedly blistered without effect. In March of the same year, I was consulted by letter; but it being a case not to be judged of without seeing the patient, in April she was brought to London. I found her totally unable to sit in a chair, her legs being perfectly useless. She was carried about in her nurse's arms. She looked ill, and slept badly: when bed in her legs were always cold, she was tormented with pains in the hips and sides, and required frequently to be moved into a different position. I made no doubt that all these complaints arose from the original malady, which had been suffered to get worse and become active by not attending to the management of the Issues, which, though not closed, were now small, with one pea in each, and one of the Issues at a considerable distance from the Spine. The arch of the curve was also enlarged since I first saw

her, but fortunately the angle which I before remarked was not more acute. I again advised Issues to be opened, and she remained in London under my care. April 13, caustics were applied on both sides of the curvature; the following day the nurse informed me that she had had a better night than usual: in a few days after she said she had lost her night-pains. Her legs were warmer, and she slept well, not wishing to be turned or have her posture varied as before. In one week she began to stand and use her legs a little; in a fortnight she walked with the assistance of her nurse's hand. She now caught cold and had a little fever, which weakened her and somewhat retarded improvement; notwithstanding, in three weeks she walked across the room alone. In a month she had regained her health and spirits, walked uprightly, and, greatly to the alarm of the nurse, who was absent a few minutes, had walked

walked down stairs. Though the curvature in this case was not very considerable, it occurred to me, that some contrivance to take off the pressure of the superior parts would be a great security against the return of the complaint. I represented this to her friends; but she was now so well, and the idea of casing her in irons, as it was called, so disagreeable, that it was not complied with, and she returned to Bristol. I heard from thence repeatedly, that she walked, played, and ran nearly as well as the other children. She continued well to the end of September (1795), when I had a letter saying, she was not so well as she had been, that she again began to be fond of leaning on her arms, and her legs began to fail her. Oct. 9, she returned to London; I found her in good health and spirits, but she walked with difficulty, and there was an evident and rapid diminution of her loco-motive powers
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taking place. The Issues were still open, and discharged moderately, yet sufficiently, in many cases, to have answered the purpose; but in the present it appeared to me, and I again represented to her father, that though the curvature was not very large, it probably gave a mechanical weakness, independent of any disease the progress of which appeared to be stopped, and that it would be in vain to put the child to more pain and trouble by enlarging the drain, unless her figure and strength could be at the same time supported and maintained by a proper instrument. Having before been foiled, I now readily got consent to do what I thought right. The Issues were accordingly carried rather higher toward the superior part of the curve, at the same time a proper spinal apparatus, made by Mr. Jones, was applied, from which she became more upright, soon regained the perfect use of her limbs, and acquired permanent health

health and strength. I may now add, February 20, 1799, that I am informed that she has not discontinued either the Issues or the apparatus, but that she remains perfectly active and well.

CASE IV.

In the autumn of 1798, a young woman was placed under my care in the hospital, who had lost the use of the lower limbs. On examining the Spine, a small protrusion was observed of only two of the vertebræ of the loins, forming nearly an acute angle. By the application of caustics, in no great length of time she regained strength, and was enabled to walk without assistance. After this she continued in the house a much longer time than is usually allowed; because, though capable of walking, she felt a weakness in the back, which would not suffer her to continue long on her legs, or even to sit
up

up for any length of time ; but she was obliged frequently to procure ease in the day, by lying on the bed. As there was no appearance of the weakness getting better, I conceived, although the curve, as was observed, was small, that she would find relief from the assistance of an instrument, to lessen the superincumbent weight. It was accordingly applied. From the time it was put on, she felt immediate benefit, no longer wanted to indulge on the bed, and in a fortnight after was discharged. I have repeatedly seen her since her dismissal. She has had no return of sensation of weakness in the back, but continues to receive, as she expresses, great comfort and support from the spinal apparatus.

I have now said all that appears to me necessary on the present occasion. The further consideration of the subject I take the liberty

liberty to recommend to those who have opportunities of applying it to the test of practice. If I have been somewhat prolix in the detail of some of the preceding cases, I must beg leave to observe that I have selected them from many others, and have thought it right to record them particularly, as striking and remarkable specimens of the powerful effect arising from the application of caustics, and of the further benefit which is sometimes to be derived from the assistance of mechanical powers.

THE END.

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